

Application No. 10/806,775  
Amendment dated March 14, 2005  
Reply to Office action of September 15, 2004

**Amendments to the Claims:**

This listing of claims will replace all prior versions, and listings, of claims in the application:

**Listing of Claims:**

1                   Claim 1 (currently amended): A fan array fan section in an air-handling  
2 system comprising:  
3                   (a) at least three six fan units;  
4                   (b) said at least three six fan units arranged in a fan array;  
5                   (c) an air-handling compartment within which said fan array of fan units  
6                   is positioned; and  
7                   (d) an array controller for controlling said at least three six fan units to  
8                   run at substantially peak efficiency by strategically turning selective  
9                   ones of said at least six fan units on and off.

10  
1                   Claim 2 (currently amended): The fan array fan section in an air-handling  
2 system of claim 1, wherein said at least three six fan units are plenum fans.  
3

1                   Claim 3 (original): The fan array fan section in an air-handling system of  
2 claim 1, wherein said air-handling compartment has an airway path, said airway path  
3 being less than 72 inches.

4  
1                   Claim 4 (currently amended): The fan array fan section in an air-handling  
2 system of claim 1, wherein said at least three six fan units are a plurality of fan units  
3 arranged in a fan array configuration selected from the group consisting of:  
4                   (a) a true array configuration;  
5                   (b) a spaced pattern array configuration;

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6                   (c) a checker board array configuration;  
7                   (d) rows slightly offset array configuration;  
8                   (e) columns slightly offset array configuration; and  
9                   (f) a staggered array configuration.

10  
1                 Claim 5 (currently amended): The fan array fan section in an air-handling  
2 system of claim 1, wherein said at least ~~three~~ six fan units [[are plenum fans]] include at  
3 least two vertically arranged fan units.

4  
1                 Claim 6 (currently amended): The fan array fan section in an air-handling  
2 system of claim 1, wherein each of said at least ~~three~~ six fan units is positioned within a  
3 fan unit chamber.

4  
1                 Claim 7 (currently amended): The fan array fan section in an air-handling  
2 system of claim 1, wherein each of said at least ~~three~~ six fan units is suspended within a  
3 respective said fan unit chamber such that there is an air relief passage therebelow.

4  
1                 Claim 8 (currently amended): The fan array fan section in an air-handling  
2 system of claim 1, wherein each of said at least ~~three~~ six fan units is positioned within a  
3 fan unit chamber having at least one acoustically absorptive insulation surface.

4  
1                 Claim 9 (original): The fan array fan section in an air-handling system of  
2 claim 1, wherein each of said at least ~~three~~ six fan units are mounted in a grid system.

3  
1                 Claim 10 (original): The fan array fan section in an air-handling system of  
2 claim 1, wherein each of said at least ~~three~~ six fan units has a fan wheel diameter,  
3 wherein spacing between said at least ~~three~~ six fan units is less than 60% of said fan  
4 wheel diameter.

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1                   Claim 11 (currently amended): A fan array fan section in an air-handling  
2 system comprising:

- 3                   (a) an air-handling compartment;
- 4                   (b) a plurality of fan units;
- 5                   (c) said plurality of fan units arranged in a fan array;
- 6                   (d) said fan array having at least one fan unit arranged vertically on at  
7                   least one other fan [[unit.]] unit;
- 8                   (e) said fan array positioned within said air-handling compartment; and
- 9                   (f) said air-handling compartment positionable within a structure such  
that said air-handling system conditions the air of said structure.

11  
1                   Claim 12 (currently amended): The fan array fan section in an air-  
2 handling system of claim 11 further comprising an array controller programmed to  
3 operate said plurality of fan units at peak efficiency by strategically turning on and off  
4 selective ones of said plurality of fan units.

5  
1                   Claim 13 (original): The fan array fan section in an air-handling system of  
2 claim 11, wherein said plurality of fan units are plenum fans.

3  
1                   Claim 14 (original): The fan array fan section in an air-handling system of  
2 claim 11, wherein said air-handling compartment has an airway path, said airway path  
3 being less than 72 inches.

4  
1                   Claim 15 (original): The fan array fan section in an air-handling system of  
2 claim 11, wherein said plurality of fan units are arranged in a fan array configuration  
3 selected from the group consisting of:

- 4                   (a) a true array configuration;
- 5                   (b) a spaced pattern array configuration;
- 6                   (c) a checker board array configuration;

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7                   (d)     rows slightly offset array configuration;  
8                   (e)     columns slightly offset array configuration; and  
9                   (f)     a staggered array configuration.

10  
1                   Claim 16 (original): The fan array fan section in an air-handling system of  
2     claim 11, wherein each of said plurality of fan units is positioned within a fan unit  
3     chamber.

4  
1                   Claim 17 (currently amended): The fan array fan section in an air-  
2     handling system of claim 11, wherein each of said plurality of fan units is suspended  
3     within a respective said fan unit chamber such that there is an air relief passage  
4     therebelow.

5  
1                   Claim 18 (currently amended): The fan array fan section in an air-  
2     handling system of claim 11, wherein each of said plurality of fan units is positioned  
3     within a fan unit chamber having at least one acoustically absorptive insulation surface.

4  
1                   Claim 19 (original): The fan array fan section in an air-handling system of  
2     claim 11, wherein each of said plurality of fan units is mounted in a grid system.

3  
1                   Claim 20 (original): The fan array fan section in an air-handling system of  
2     claim 11, wherein each of said plurality of fan units has a fan wheel diameter, wherein  
3     spacing between said plurality of fan units is less than 60% of said fan wheel diameter.

4  
1                   Claim 21 (new): The fan array fan section in an air-handling system of  
2     claim 1, further comprising an array of backdraft dampeners, each backdraft dampener  
3     in line with a respective fan unit.

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1                   Claim 22 (new): The fan array fan section in an air-handling system of  
2 claim 11, further comprising an array of backdraft dampeners, each backdraft dampener  
3 in line with a respective fan unit.

4

1                   Claim 23 (new): The fan array fan section in an air-handling system of  
2 claim 1, wherein each fan unit has a peak efficiency operating range outside of which it  
3 operates at a reduced efficiency, wherein said array controller is programmed to  
4 operate said at least six fan units at substantially peak efficiency by strategically turning  
5 off at least one fan unit operating at reduced efficiency and running the remaining fan  
6 units within said peak efficiency operating range.

7

1                   Claim 24 (new): The fan array fan section in an air-handling system of  
2 claim 11, further comprising an array controller, wherein each fan unit has a peak  
3 efficiency operating range outside of which it operates at a reduced efficiency, wherein  
4 said array controller is programmed to operate said plurality of fan units at substantially  
5 peak efficiency by strategically turning off at least one fan unit operating at reduced  
6 efficiency and running the remaining fan units within said peak efficiency operating  
7 range.

8

1                   Claim 25 (new): The fan array fan section in an air-handling system of  
2 claim 1, said array controller is programmed to operate said at least six fan units at peak  
3 efficiency for a performance level based on a criteria selected from the following group  
4 of criteria:

5                   (a) air volume;  
6                   (b) level of air flow;  
7                   (c) pattern of air flow; and  
8                   (d) number of fan units to operate.

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1                   Claim 26 (new): The fan array fan section in an air-handling system of  
2 claim 11, further comprising an array controller for controlling said plurality of fan units  
3 to run at substantially peak efficiency by strategically turning selective ones of said  
4 plurality of fan units on and off, said array controller programmed to operate said  
5 plurality of fan units at peak efficiency for a performance level based on a criteria  
6 selected from the following group of criteria:

7                   (a) air volume;  
8                   (b) level of air flow;  
9                   (c) pattern of air flow; and  
10                  (d) number of fan units to operate.

11  
1                   Claim 27 (new): The fan array fan section in an air-handling system of  
2 claim 1, said array controller is programmed to operate said at least six fan units to  
3 produce a stable operating point and eliminate the surge effects.

4  
1                   Claim 28 (new): The fan array fan section in an air-handling system of  
2 claim 11, further comprising an array controller for controlling said plurality of fan units,  
3 said array controller is programmed to operate said plurality of fan units to produce a  
4 stable operating point and eliminate the surge effects.

5  
1                   Claim 29 (new): The fan array fan section in an air-handling system of  
2 claim 1, said array controller is programmed to selectively control the speed of each of  
3 said at least six fan units to run at substantially peak efficiency.

4  
1                   Claim 30 (new): The fan array fan section in an air-handling system of  
2 claim 11, further comprising an array controller for controlling said plurality of fan units,  
3 said array controller is programmed to selectively control the speed of each of said  
4 plurality of fan units to run at substantially peak efficiency.

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1                   Claim 31 (new): The fan array fan section in an air-handling system of  
2 claim 1, said air-handling compartment positionable within a structure such that said air-  
3 handling system conditions the air of said structure.

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